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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/702,074	10/30/2000	Yi Liu	100969-147	9095

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EXAMINER

MARTIR, LILYBETT

ART UNIT	PAPER NUMBER
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2855

DATE MAILED: 02/13/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/702,074

Applicant(s)

LIU, YI

Examiner

Lilybett Martir

Art Unit

2855

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 October 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: _____

DETAILED ACTION

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the correlator, the pipe of a building heating system, process feed gas pipe of a chemical plant must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5,7-8, and 12-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Bruner (Pat. 4,528,857). Bruner teaches the claimed invention, including:

- A first transmitter receiver pair as in elements 24 and 26 secured to define a first ultrasonic signal path as in element 32a across the fluid flowing in the conduit as in element 12; a second transmitter receiver pair as in elements 28 and 30 configured to define a second ultrasonic path as in element 32b across fluid flowing in the conduit; said second transmitter receiver pair being mounted so that the second path is

antiparallel to the first path and spaced a fixed distance there from (Col. 3, lines 25-28); and a processor as in elements 14 and 16 operative to correlate a tag-modulated output signal of said first pair with a tag-modulated output signal of said second pair to determine a time interval representative of flow, as in claim 1.

- Said first pair operating at a different frequency than said second pair (Col. 3, lines 17-19), as in claim 2.
- Operating in a frequency range above 100 Kilohertz (Col. 3, lines 22-23), as in claim 3.
- Said frequency range lying above approximately 900 kilohertz (Col. 3, lines 22-23), as in claim 4.
- The first pair operating at a frequency different than frequency of operation of said second pair (Col. 3, lines 17-19), and received signals being demodulated as with elements 38 and 46, as in claim 5.
- Said first pair as in elements 24 and 26 and said second pair as in elements 28 and 30 operate in a continuous mode (as noted in Figure 1, by way of two loop-circuits 14 and 16), as in claim 7.
- First and second transmitter receiver pairs as in elements 24, 26, 28 and 30 defining first and second transit paths across a conduit as in elements 32a and 32b, the second transit path being anti-parallel to the first transit path (Col. 3, lines 27-28), a signal processor for processing signals received along said first and second paths as in elements 14 and 16; and

a correlator as in element 54 for determining a time interval between correlated tag modulated signals on said first and second paths, as in claim 8.

- At least one of the transducers attached to a conduit as in element 12 by clamp-on (Col. 6, lines 44-45), as in claim 12.
- Regarding method claims 13-15, said claims exist as an essential constituent of the claimed invention and are therefore said to be inherently disclosed in the teachings of Bruner.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6, and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bruner (Pat. 4,528,857). Bruner teaches the claimed invention, except for:

- Said first pair operating at a frequency within approximately ten percent of said frequency of operation of said second pair, as in claim 6.
- Said transducers being coupled to a team pipe of a building heating system, as in claim 9.
- Said transducers being attached to a process feed gas pipe of a chemical plant, as in claim 10.

Since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233; it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the ultrasonic flowmeter of Bruner by making the first pair of transducers operate at a frequency within approximately ten percent of the frequency of operation of the second pair for the purpose of maintaining the modulation of both signals by the flow highly correlated. And since it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations, Ex Parte Masham, 2 USPQ F.2d 1647 (1987); it would also have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the ultrasonic flowmeter of Bruner by coupling them to either the pipe of a building heating system or to a process feed gas pipe of a chemical plant for the purpose of measuring the flow of a fluid in a particular kind of pipe.

Citation of Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art considered pertinent during examination of the examined application is:

- Ims (Pat. 3,751,979) Speed measurement system.
- Yamamoto et al. (Pat. 5,856,622) Clamp-on type ultrasonic flow meter and a temperature and pressure compensation method therein.

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- Oldenziel et al. (Pat. 5,533,408) Clamp-on ultrasonic volumetric flowmeter.
- Donelan et al. (Pat. 4,003,256) Acoustic oscillation fluid velocity measuring device.
- Margori (Pat. 4,375,767) Flow-through flow meter with ultrasound.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lilybett Martir whose telephone number is (703)305-6900. The examiner can normally be reached on 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Benjamin Fuller can be reached on (703)308-0079. The fax phone numbers for the organization where this application or proceeding is assigned are (703)305-3432 for regular communications and (703)305-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

LH

Lilybett Martir
Examiner
Art Unit 2855

RCM

January 29, 2002


Benjamin R. Fuller
Supervisory Patent Examiner
Technology Center 2800